Exhibit 12 Part 10

Part 1 of Attachment L to the Allocation Recommendation Report (ARR2007-ARR2106)

United States' Motion to Enter Consent Decree,
United States v. Alden Leeds, Inc. et al., Civil Action No. 22-7326 (D.N.J.)

ATTACHMENT L

FACILITY DATA COMPUTATION SHEETS

Allocation Facility Cmass Calculation

21st Century Fox America, Inc. (21CFA)	100 Lister Ave	Newark	NJ	07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	5,492.36	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	970.45	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	2,517.07	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	0.77	100.00%	-	0.00%	-	100.00%	-	0.77	1.018817E-2	0.01
LPAHs	100.00%	567.02	100.00%	-	0.00%	-	100.00%	-	567.02	1.018817E-2	5.78
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	486.72	100.00%	-	0.00%	-	100.00%	-	486.72	1.018817E-2	4.96
Dieldrin	100.00%	1.11	100.00%	-	0.00%	-	100.00%	-	1.11	1.018817E-2	0.01
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

21st Century Fox America, Inc. (21CFA)	100 Lister Ave	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0.01	3.269E-8	1.634E-9
LPAHs	0.01	170,000.00	5.78	3.398E-5	3.398E-7
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	4.96	1.837E-4	2.516E-4
Dieldrin	0.13	390.00	0.01	2.900E-5	3.770E-6
Dioxins_Furans	83.92	38.00	0	2.681E-8	2.250E-6

Allocation Facility COC Base Scores - Alternative Calulcation

21st Century Fox America, Inc. (21CFA)	100 Lister Ave	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.772E-7	0.01	0.03	1.772E-7	8.858E-9
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.882E-4	5.78	26.22	1.882E-4	1.882E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	1.934E-1	4.96	5,216.26	1.934E-1	2.649E-1
Dieldrin	0.13	390.00	1.27	389.99	8.771E-1	0.01	342.04	8.771E-1	1.140E-1
Dioxins_Furans	83.92	38.00	3,729.82	0.00	2.681E-8	0	0	2.681E-8	2.250E-6

Facility Bypass Information

21st Century Fox America, Inc. (21CFA)	**100 Lister Ave**	**Newark**	**NJ**	**07105**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	2.8 Acres
24	# hours/per day discharged	Organic Chemical Production
5	#days/week discharged	All sanitary water, wastewater and process water discharged to the sewer. No routes of direct entry to the Passaic River. FDR
	#weeks/yr discharged	Directly to PVSC no CSO or Bypass
20,287,112	calc gal/yr discharge	No information on sewer discharge sampling or flowrates - USING SUN CHEMICAL TO ESTIMATE
1939	Yr Ops started	
1972	Yr Ops ceased	According to March 2018 Documentation of Environmental Indicator Determination, there are no current
33	calc #yrs facility operated	or known historic site related surface or waste water conveyances to the Passaic River
Copper (Cu)		
33	#yrs facility discharged	Estimated based on Sun Chemical
2.17	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
5,492.36	calc kg COC discharged	
Lead (Pb)		
33	#yrs facility discharged	Estimated based on Sun Chemical
0.383	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
970.45	calc kg COC discharged	
Mercury (Hg)		
33	#yrs facility discharged	Estimated based on Sun Chemical
0.9933	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,517.07	calc kg COC discharged	
HPAHs		
33	#yrs facility discharged	
	calc mg/L O&G	No Historic Use of PAHs on site
10%	% O&G that is considered PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
33	#yrs facility discharged	
	calc mg/L O&G	No Historic Use of PAHs on site
10%	% O&G that is considered PAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
34	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
23	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
33	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
27	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
28	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
23	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
5,492.36	kg Copper	
970.45	kg Lead	
2,517.07	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
4.08	FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
2.8	ACRES - TOTAL SITE AREA (acres)	FDR page 1	
1.0	ACRES - AFFECTED AREA	Rough estimate of site area with exposed fill based on aerial photographs and Google Earth.	
4,046.86	METERS^2/ACRE		
4,047	METERS^2 (AFFECTED AREA)		
0.0001	METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
0	METERS^3/YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED	
1939	Year site operations began	FDR page 1	
1974	Year site processing and storage operations ceased	FDR page 1	
35	NUMBER YEARS DISCHARGE		
14	METERS^3 (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
1,963	KG/M^3 SOIL DENSITY	Silt/Sand/Gravel, Dark Brown Blend. Bulk density range 1442 KG/M^3 to 2483 KG/M^3, so use average. (http://structx.com/Soil_Properties_002.html)	
27,797	KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
		The site is located on regional Historic Fill (FDR page 17)	
Copper (Cu)			
35	YEARS DISCHARGED		
0	MG/KG (MAX CONCENTRATION)	Maximum detected concentration of copper in soils 281 ppm (FDR; PAP-00026600, PAS-00107134, PAP-00026528, PAS-00106903). Set to 0 since less than HF.	
0.000001	kg per mg (Merck Index)		
0	KILOGRAMS DISCHARGED		
Lead (Pb)			
35	YEARS DISCHARGED		
0	MG/KG (AVERAGE CONCENTRATION)	Maximum detected concentration of lead in soils 671 ppm (FDR; PAS-00107134, PAP-00026528, PAS-00106903). Set to 0 since less than HF.	
0.000001	kg per mg (Merck Index)		
0	KILOGRAMS DISCHARGED		

Mercury (Hg)		
35	YEARS DISCHARGED	
0.0	MG/KG (MAX CONCENTRATION)	Maximum detected concentration of mercury in soils 3.6 ppm (PAS-00107134). Set to 0 since less than HF.
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)		Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.
35	YEARS DISCHARGED	
27.6	MG/KG (TOTAL PAH MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
1	KILOGRAMS DISCHARGED	
PAHs (others detected)		Data below the Benzo(a)pyrene Equivalent Table. LMW PAH concentrations reflect a single sample and HMW PAHs are remvoed from the summation of LMW PAHs. Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.
35	YEARS DISCHARGED	
89	MG/KG (TOTAL PAH MAX CONCENTRATION)	Sum of Other PAH compound maximum concentrations listed in documents.
0.000001	kg per mg (Merck Index)	
2	KILOGRAMS DISCHARGED	
PCBs		NJDEP concluded that PCBs are not a site COC in 2016 (PAP-00026459).
35	YEARS DISCHARGED	FDR does not indicated PCBs in site soils.
0	MG/KG (MAX OF REPORTED CONCENTRATIONS)	
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
DDx		
35	YEARS DISCHARGED within DDx Timeline	DDx timeframe 1940-1974 (35 years).
17510	MG/KG (MAX CONCENTRATION)	DDx concentrations reflect a single sample, ABUST-S1-0.5-2.5 (PAP-00026610). Sum of 510 mg/kg 4,4-DDE, and 17000 mg/kg 4,4-DDT.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
487	KILOGRAMS DISCHARGED	
Dieldrin		
24	YEARS DISCHARGED within Dieldrin Timeline	Dieldrin timeframe 1950-1974 (24 years). The end date for years discharge reflects the year the site was sold.
40	MG/KG (MAX CONCENTRATION)	Sample ABUST S1 (PAP-00026610,6495)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1	KILOGRAMS DISCHARGED	
Dioxins/Furans		2,4-D produced onsite
35	YEARS DISCHARGED	
0.0042	MG/KG (MAX CONCENTRATION)	Detected in range of 0.36-4.2 ug/kg in soils (FDR, PAS-00107212)
0.000001	kg per mg (Merck Index)	
0.00012	calc kg COC discharged	

Sample LA-4-4 (2.5-3.0 ft bgs) (PAP-00026526) Carcinogenic PAH concentrations have been updated to reflect a single sample. Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	21.000	1.0	21.0000
Benzo(a)anthracene	25.000	0.1	2.5000
Benzo(b)fluoranthene	24.000	0.1	2.4000
Benzo(k)fluoranthene	12.000	0.01	0.1200
Chrysene	22.000	0.001	0.0220
Dibenz(a,h)anthracene	0.840	1.0	0.8400
Indeno(1,2,3-cd)pyrene	7.300	0.1	0.7300

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 27.6

Sample LA-4-4 (2.5-3.0 ft bgs) (PAP-00026526)	
Anthracene	13
Acenaphthene	3.4
Acenaphthylene	4.5
Fluorene	8.6
Naphthalene	4.1
Phenanthrene	53
2-Methylnaphthalene	2.4
SUM	89

SUMMARY CMASS ESTIMATES:	
0.00	kg Copper
0.00	kg Lead
0.00	kg Mercury
0.77	kg PAHs (Benzo(a)pyrene Equivalent)
2.47	kg PAHs (Other)
0.00	kg PCBs
486.72	kg DDx
1.11	kg Dieldrin
0.0001	kg Dioxins/Furans

491.08	MASS (KG) DISCHARGED FROM SURFACE SOIL

Discharge Calcs	Direct Discharge Information	NOTES, COMMENTS, REFERENCES	
1939	Year site operations began	FDR page 1	Randell Inteview dated 1/25/1994 stated he and other works routinely dumped five gallon pails of waste cresol into the Passaic River (PAS-00003917)
1974	Year site processing and storage operations ceased	FDR page 1	Rothberg's Affidavit dated 2/21/06 states "…..it made no sense for employees to hand carry buckets of process waste to the river. He never observed nor had any other knowledge of any employess carrying buckets of waste from the facility across neighboring properties to the river. "I cannot conceive of any reason that anyone would have done such a thing, when the troughs and other disposal areas at the facility provided a ready means for waste disposal and were within approximately fifteen feet of any location within the facility. Nor was waste cresol, which Mr. Randell said was in the buckets, generated at the Newark Plant." (PAP-00027867-68, PAP-00027868)
			According to Google Maps there is a road that goes to the river just west of the property.
35	NUMBER YEARS DISCHARGE		Assume buckets of waste cresol dumped 1 time per year for years of operation
		Cresol could be made from coal tar, which contains a number of PAHs.	
PAHs		Assume 5 gallons buckets of Cresol Dumped. 8 buckets per year = 40 gallons per year	Assume Cresol contains 10% PAHs
35	YEARS DISCHARGED	Cresol: 8.89#/gallon	
	MG/KG (TOTAL PAH MAX CONCENTRATION)	40 gallons x 8.89#/gallon x .453592 kg/# = 161.30 kg/yr x 10% = 16.13 kg/yr	
0.000001	kg per mg (Merck Index)	16.13 kg/yr x 35 years = 564.55 kg	
564.55	KILOGRAMS DISCHARGED		

Chrysene		0.001	0.0000
Dibenz(a,h)anthracene		1.0	0.0000
Indeno(1,2,3-cd)pyrene		0.1	0.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **0.0**

SUMMARY CMASS ESTIMATES:

564.55 kg PAHs MAX

564.55 MASS (KG) DISCHARGED BY OVERLAND FLOW

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

21st Century Fox America, Inc. (21CFA)

100 Lister Ave	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
2.580E-4	5.0%	Occasional Noncompliance	An RI Report noted spills may have occurred during 1914 (possibly earlier) through the mid-1980s due to several rail lines that crossed the facility, based on buried rail ties discovered at the site (PAS-00107038). Former Montrose Chemical employee Oscar Randall noted that much of the unpaved area at the property was heavily contaminated with spilled substances. The soil was jet black and smelled strongly of cresol, and the groundwater was discolored and smelled (PAS-00106689). According to the interview of Randell dated January 25, 1994, he and other workers would routinely dump five-gallon pails of waste cresol into the Passaic River (PAS-00003917) - not possible to quantify amount. No indication that NOVs issued to facility	-20.0%	0% Cooperation with conduct of allocation and requests for related information -20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	2.193E-4

AP_ABS	2.193E-4

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

21st Century Fox America, Inc. (21CFA)

100 Lister Ave	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
3.789E-1	5.0%	Occasional Noncompliance	An RI Report noted spills may have occurred during 1914 (possibly earlier) through the mid-1980s due to several rail lines that crossed the facility, based on buried rail ties discovered at the site (PAS-00107038). Former Montrose Chemical employee Oscar Randall noted that much of the unpaved area at the property was heavily contaminated with spilled substances. The soil was jet black and smelled strongly of cresol, and the groundwater was discolored and smelled (PAS-00106689). According to the interview of Randell dated January 25, 1994, he and other workers would routinely dump five-gallon pails of waste cresol into the Passaic River (PAS-00003917) - not possible to quantify amount. No indication that NOVs issued to facility	-20.0%	0% Cooperation with conduct of allocation and requests for related information -20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.221E-1

AP_ABS	3.221E-1

Allocation Facility Cmass Calculation

Alden Leeds Inc.	**55 Jacobus Avenue**	**Kearny**	**NJ**

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	0.00%	20.17	100.00%	-	0	1.018817E-2	0
LPAHs	100.00%	-	100.00%	-	0.00%	13.45	100.00%	-	0	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Alden Leeds Inc.	**55 Jacobus Avenue**	**Kearny**	**NJ**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0	0	0
LPAHs	0.01	170,000.00	0	0	0
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Alden Leeds Inc.	**55 Jacobus Avenue**	**Kearny**	**NJ**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	0	0	0	0	0
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	0	0	0	0	0
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Alden Leeds Inc.	**55 Jacobus Avenue**	**Kearny**	**NJ**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Facility used for Office Space and Storage of Raw Materials and Finished Product. No Hazardous Waste
	# hours/per day discharged	No information on sewer discharge
	#days/week discharged	1987 violation order form Hudson Regional Health Commission for connection of septic holding tank to storm drain system
	#weeks/yr discharged	
411,250	calc gal/yr discharge	
1993	Yr Ops started	
2005	Yr Ops ceased	
12	calc #yrs facility operated	
Copper (Cu)		
12	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
12	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
12	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
12	#yrs facility discharged	
18.00	calc mg/L O&G	Based on Alden Leads Hackensack Ave
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
1.1	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
20.17	calc kg COC discharged	
LPAHs		
12	#yrs facility discharged	
18.00	calc mg/L O&G	Based on Alden Leads Hackensack Ave
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.7	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
13.45	calc kg COC discharged	
PCBs		
-15	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-20	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-5	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	

Dioxins/Furans		
12	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
13	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-7	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-17	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
20.17	kg HPAHs	
13.45	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Allocation Facility Cmass Calculation

Alden Leeds Inc.	100 Hakensack Avenue	Newark	NJ

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	0.00%	21.85	100.00%	54.0	53.96	1.018817E-2	0.55
LPAHs	100.00%	-	100.00%	-	0.00%	14.57	100.00%	36.0	35.97	1.018817E-2	0.37
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Alden Leeds Inc.	**100 Hakensack Avenue**	**Newark**	**NJ**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0.55	2.291E-6	1.145E-7
LPAHs	0.01	170,000.00	0.37	2.156E-6	2.156E-8
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Alden Leeds Inc.	**100 Hakensack Avenue**	**Newark**	**NJ**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.241E-5	0.55	2.43	1.241E-5	6.207E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.194E-5	0.37	1.66	1.194E-5	1.194E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Alden Leeds Inc.	**100 Hakensack Avenue**	**Newark**	**NJ**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Very limited information. Facility repackaged pool chemicals
24	# hours/per day discharged	1994 PVSC Permit
	#days/week discharged	111,250 gallons sanitary water and 300,000 gallons of process wastewater
250	#days/year discharged	
411,250	calc gal/yr discharge PAS0000007	Discharged wastewater to sanitary sewer and cooling water to storm sewer/river/ditch
1993	Yr Ops started	
2005	Yr Ops ceased	
13	calc #yrs facility operated	
Copper (Cu)		
13	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
13	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
13	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
13	#yrs facility discharged	Only sampling data from 1994
18.00	calc mg/L O&G PAS0000007	18 mg/l Oil & Grease
10%	% O&G that is considered PAHs	13.3 mg/l TPH
60%	% PAHs considered as HPAHs	20.1 mg/l TOC
1.08	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
21.85	calc kg COC discharged	
LPAHs		
13	#yrs facility discharged	Only sampling data from 1994
18.00	calc mg/L O&G PAS0000007	18 mg/l Oil & Grease
10%	% O&G that is considered PAHs	13.3 mg/l TPH
40%	% PAHs considered as LPAHs	20.1 mg/l TOC
0.72	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
14.57	calc kg COC discharged	
PCBs		
-15	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-20	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-5	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
13	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
13	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-7	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-17	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
21.85	kg HPAHs	
14.57	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Very limited information. Facility repackaged pool chemicals
	# days/week discharged	1994 PVSC Permit
	# weeks/yr discharged	1,100,000 gallons of cooling water discharged to Storm sewer/ditch/river
1,100,000	# gals/yr directly discharged PAS0000007	
		Discharged wastewater to sanitary sewer and cooling water to storm sewer/river/ditch
1993	Yr Ops started	
2005	Yr Ops ceased	
12	calc #yrs facility operated	
Copper (Cu)		
12	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
12	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
12	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
12	#yrs facility discharged	Only sampling data from 1994
18.00	calc mg/L O&G PAS0000007	18 mg/l Oil & Grease
10%	% O&G that is considered PAHs	13.3 mg/l TPH
60%	% PAHs considered as HPAHs	20.1 mg/l TOC
1.08	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
53.96	calc kg COC discharged	
LPAHs		
12	#yrs facility discharged	Only sampling data from 1994
18.00	calc mg/L O&G PAS0000007	18 mg/l Oil & Grease
10%	% O&G that is considered PAHs	13.3 mg/l TPH
40%	% PAHs considered as LPAHs	20.1 mg/l TOC
0.72	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
35.97	calc kg COC discharged	
PCBs		
-15	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-20	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-5	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
12	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
13	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-7	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-17	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
53.96	kg HPAHs	
35.97	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Allocation Facility Cmass Calculation

Alden Leeds Inc.	2145 McCarter Highway	Newark	NJ	07104

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	8.23%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	8.23%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	8.23%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	8.23%	13.45	100.00%	31.5	32.58	1.018817E-2	0.33
LPAHs	100.00%	-	100.00%	-	8.23%	8.97	100.00%	21.0	21.72	1.018817E-2	0.22
PCBs	100.00%	-	100.00%	-	8.23%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	8.23%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	8.23%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	8.23%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Alden Leeds Inc.	**2145 McCarter Highway**	**Newark**	**NJ**	**07104**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0.33	1.383E-6	6.916E-8
LPAHs	0.01	170,000.00	0.22	1.302E-6	1.302E-8
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Alden Leeds Inc.	2145 McCarter Highway	Newark	NJ	07104

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	7.496E-6	0.33	1.47	7.496E-6	3.748E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	7.210E-6	0.22	1.	7.210E-6	7.210E-8
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Alden Leeds Inc.	**2145 McCarter Highway**	**Newark**	**NJ**	**07104**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Verona Ave	CSO	1.27%	21.70%	
2	Verona Ave	Bypass	7.95%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	No information or data regarding CSO discharges.
	# hours/per day discharged	PAS00000045 NJDEP Memorandum from 1993 states "Floor sweepings of chlorinating agents were added to the facility wastewater treatment system and discharged to the combined sewer one time per week." Assumed no COCs involved.
	#days/week discharged	Utilizing Alden Leads Hackensack Ave to estimate
	#weeks/yr discharged	
411,250	calc gal/yr discharge	
1964	Yr Ops started	
1971	Yr Ops ceased	
8	calc #yrs facility operated	
Copper (Cu)		
8	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
8	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
8	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
8	#yrs facility discharged	Based on Alden Leads Hackensack Avenue
18.00	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
1.1	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
13.45	calc kg COC discharged	
LPAHs		
8	#yrs facility discharged	Based on Alden Leads Hackensack Avenue
18.00	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.7	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
8.97	calc kg COC discharged	
PCBs		
8	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
8	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
8	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
8	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
8	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
8	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
8	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
13.45	kg HPAHs	
8.97	kg LPAHs	
-	kg PCBs	
-	kg DDx	

-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Utilizing Alden Leads Hackensack Ave to Estimate
	# days/week discharged	
	# weeks/yr discharged	
1,100,000	# gals/yr directly discharged	
1964	Yr Ops started	
1971	Yr Ops ceased	
7	calc #yrs facility operated	
Copper (Cu)		
7	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
7	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
7	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
7	#yrs facility discharged	
18.00	calc mg/L O&G	Based on Alden Leads Hackensack Ave
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
1.08	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
31.48	calc kg COC discharged	
LPAHs		
7	#yrs facility discharged	
18.00	calc mg/L O&G	Based on Alden Leads Hackensack Ave
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.72	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
20.98	calc kg COC discharged	
PCBs		
8	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
8	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
8	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
7	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
8	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
8	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
8	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
31.48	kg HPAHs	
20.98	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Alden Leeds Inc.

2145 McCarter Highway | Newark | NJ | 07104

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
8.217E-8	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	9.861E-8

100 Hakensack Avenue | Newark | NJ

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
1.361E-7	5.0%	Occasional Noncompliance	Facility had a fire on July 26, 1971 that destroyed the building and resulted in the release of "a large quantity" of chlorinated cyanuric acid into the Second River (PAS-00000022). PVSC presented an Award of Excellence to Alden Leeds-Hackensack Ave. for operations from January 1, 2002 through December 31, 2005 without incurring a reporting or effluent violation (PAP-00097620; PAS-00020963).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	1.701E-7

55 Jacobus Avenue | Kearny | NJ

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
0	5.0%	Occasional Noncompliance	According to a "Field Investigation" form prepared by the Hudson Regional Health Commission, dated April 21, 1987, a "violation order" would be issued to Alden Leeds regarding the connection of a septic holding tank to the storm drain system at the 55 Jacobus Avenue facility (PAS-00000047).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	0

AP_ABS	2.687E-7

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Alden Leeds Inc.

2145 McCarter Highway | Newark | NJ | 07104

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
4.469E-7	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	5.363E-7

100 Hakensack Avenue | Newark | NJ

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
7.401E-7	5.0%	Occasional Noncompliance	Facility had a fire on July 26, 1971 that destroyed the building and resulted in the release of "a large quantity" of chlorinated cyanuric acid into the Second River (PAS-00000022). PVSC presented an Award of Excellence to Alden Leeds-Hackensack Ave. for operations from January 1, 2002 through December 31, 2005 without incurring a reporting or effluent violation (PAP-00097620; PAS-00020963).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	9.252E-7

55 Jacobus Avenue | Kearny | NJ

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
0	5.0%	Occasional Noncompliance	According to a "Field Investigation" form prepared by the Hudson Regional Health Commission, dated April 21, 1987, a "violation order" would be issued to Alden Leeds regarding the connection of a septic holding tank to the storm drain system at the 55 Jacobus Avenue facility (PAS-00000047).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	0

AP_ABS	1.461E-6

Allocation Facility Cmass Calculation

Alliance Chemical Inc.	**33 Avenue P**	**Newark**	**NJ**	**07105**

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	221.17	100.00%	-	0.00%	17,767.89	100.00%	2,865.8	3,086.96	1.018817E-2	31.45
Lead	100.00%	354.83	100.00%	-	0.00%	3,333.18	100.00%	537.6	892.44	1.018817E-2	9.09
Mercury	100.00%	18.87	100.00%	-	0.00%	9.71	100.00%	1.6	20.44	1.018817E-2	0.21
HPAHs	100.00%	22.61	100.00%	-	0.00%	73,646.46	100.00%	11,878.5	11,901.07	1.018817E-2	121.25
LPAHs	100.00%	36.67	100.00%	-	0.00%	49,097.64	100.00%	7,919.0	7,955.64	1.018817E-2	81.05
PCBs	100.00%	5.54	100.00%	-	0.00%	-	100.00%	-	5.54	1.018817E-2	0.06
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Alliance Chemical Inc.	**33 Avenue P**	**Newark**	**NJ**	**07105**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	31.45	1.498E-5	1.033E-5
Lead	0.01	3,200,000.00	9.09	2.841E-6	2.841E-8
Mercury	0.95	42,000.00	0.21	4.957E-6	4.709E-6
HPAHs	0.05	240,000.00	121.25	5.052E-4	2.526E-5
LPAHs	0.01	170,000.00	81.05	4.768E-4	4.768E-6
PCBs	12.87	26,000.00	0.06	2.171E-6	2.794E-5
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Alliance Chemical Inc.	33 Avenue P	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.115E-2	31.45	23,374.85	1.115E-2	7.691E-3
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	3.093E-3	9.09	9,887.05	3.093E-3	3.093E-5
Mercury	0.95	42,000.00	4,322.53	41,955.96	4.728E-3	0.21	198.36	4.728E-3	4.491E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	2.738E-3	121.25	535.91	2.738E-3	1.369E-4
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	2.641E-3	81.05	367.85	2.641E-3	2.641E-5
PCBs	12.87	26,000.00	20,066.54	25,795.56	2.761E-4	0.06	7.12	2.761E-4	3.553E-3
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Alliance Chemical Inc.	**33 Avenue P**	**Newark**	**NJ**	**07105**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	
	# hours/per day discharged	
	#days/week discharged	
	#weeks/yr discharged	
24,824,386	# gals/yr directly discharged (FDR) (PAS00049812, 49890; PAS-00049812, 49893; PAS-00072817, 72895; PAP-00066317, 66320, 66369)	
1970	Yr Ops started PVSC discharge	
2001	Yr Ops ceased	
31	calc #yrs facility operated	
Copper (Cu)		
31	#yrs facility discharged	
6.10	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
17,767.9	calc kg COC discharged	
Lead (Pb)		
31	#yrs facility discharged	
1.14	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
3,333.2	calc kg COC discharged	
Mercury (Hg)		
31	#yrs facility discharged	
0.003	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
9.7	calc kg COC discharged	
HPAHs		
31	#yrs facility discharged	
421	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
25.3	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
73,646.5	calc kg COC discharged	
LPAHs		
31	#yrs facility discharged	
421	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
16.9	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
49,097.6	calc kg COC discharged	
PCBs		
8	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
3	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
18	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
31	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
32	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
16	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
6	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
17,768	kg Copper	
3,333	kg Lead	
10	kg Mercury	
73,646	kg HPAHs	
49,098	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	
	# weeks/yr discharged	
24,824,386	# gals/yr directly discharged (FDR) (PAS00049812, 49890; PAS-00049812, 49893; PAS-00072817, 72895; PAP-00066317, 66320, 66369)	assume effluent chars prior to PVSC hookup would have been similar to post PVSC hookup
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft2 per acre	
1965	Yr Ops started (FDR)	
1970	Yr Ops connected to PVSC (FDR)	
5	calc #yrs facility discharged to Plum Creek	
Copper (Cu)		
5	#yrs facility discharged	
6.10	calc mg/L COC discharged (FDR) (PAS-00072817, 72895; PAP-00066317, 66320, 66369)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,866	calc kg COC discharged	
Lead (Pb)		
5	#yrs facility discharged	
1.14	calc mg/L COC discharged (FDR) (PAS-00072817, 72895; PAP-00066317, 66320, 66369)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
538	calc kg COC discharged	
Mercury (Hg)		
5	#yrs facility discharged	
0.003	calc mg/L COC discharged (FDR) (PAS-00072817, 72895; PAP-00066317, 66320, 66369)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2	calc kg COC discharged	
HPAHs		
5	#yrs facility discharged	
421	calc mg/L O&G discharged; (FDR) (PAS-00072817, 72895; PAP-00066317, 66320, 66369, PAS-00049812, 49893; PAP-00066317, 66416)	
10%	% O&G considered as PAHs	
60%	% COC in PAHs	
25.28	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
11,878.46	calc kg COC discharged	
LPAHs		
5	#yrs facility discharged	
421	calc mg/L O&G discharged; (FDR) (PAS-00072817, 72895; PAP-00066317, 66320, 66369, PAS-00049812, 49893; PAP-00066317, 66416)	
10%	% O&G considered as PAHs	
40%	% COC in PAHs	
16.86	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
7,918.97	calc kg COC discharged	
PCBs		
6	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
6	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
6	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
5	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
6	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
6	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
6	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
2,866	kg Copper	
538	kg Lead	
1.6	kg Mercury	
11,878	kg HPAHs	
7,919	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Alliance Chemical Inc.

33 Avenue P	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
7.304E-5	10.0%	Periodic Noncompliacne	NOVs issued for hazardous discharges (e.g., acid, corrosive waste, greasy material, pH) from 1973 to 1992 (PAS-00049898, PAP-00065863, PAP-0006643, etc.), including exceedances of lead in samples collected in November 1990 (PAP-00066412). PVSC filed a Complaint dated December 17, 1993, due to continued violation of Permit No.20401080 (for zinc and cyanide). Since it was likely to continue to exceed its discharge limitations and adversely affect public health or safety or the operations of the PVSC system, PVSC demanded revoking the sewerage connection permit (PAP-00216733-36). ...some... fill came from the building, which was destroyed in a January 1980 explosion and fire (PAS-00049994). Unable to quantify releases from explosion and firefighting. Alliance also used the Avenue P landfill site to the south to store their drums; FDR says, "The 1990 Avenue P Landfill Investigative Summary noted that a 1974 aerial photograph identified a road entering the northwestern portion of the Avenue P Landfill from Alliance, and the number of drums on the Alliance premises was significantly reduced. Most of the drums were discovered in the northwest portion of the landfill (PAS-00129646-47)."	0.0%	0% Cooperation with conduct of allocation and requests for related information	8.034E-5

AP_ABS	8.034E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Alliance Chemical Inc.

33 Avenue P	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
1.593E-2	10.0%	Periodic Noncompliacne	NOVs issued for hazardous discharges (e.g., acid, corrosive waste, greasy material, pH) from 1973 to 1992 (PAS-00049898, PAP-00065863, PAP-0006643, etc.), including exceedances of lead in samples collected in November 1990 (PAP-00066412). PVSC filed a Complaint dated December 17, 1993, due to continued violation of Permit No.20401080 (for zinc and cyanide). Since it was likely to continue to exceed its discharge limitations and adversely affect public health or safety or the operations of the PVSC system, PVSC demanded revoking the sewerage connection permit (PAP-00216733-36). ...some... fill came from the building, which was destroyed in a January 1980 explosion and fire (PAS-00049994). Unable to quantify releases from explosion and firefighting. Alliance also used the Avenue P landfill site to the south to store their drums; FDR says, "The 1990 Avenue P Landfill Investigative Summary noted that a 1974 aerial photograph identified a road entering the northwestern portion of the Avenue P Landfill from Alliance, and the number of drums on the Alliance premises was significantly reduced. Most of the drums were discovered in the northwest portion of the landfill (PAS-00129646-47)."	0.0%	0% Cooperation with conduct of allocation and requests for related information	1.752E-2

AP_ABS	1.752E-2

Allocation Facility Cmass Calculation

Arkema Inc.	25 & 67 Main Street	Belleville	NJ	07109

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	32.97	100.00%	456.98	0.00%	6,854.77	100.00%	-	489.95	1.018817E-2	4.99
Lead	100.00%	34.71	100.00%	140.01	0.00%	2,100.11	100.00%	-	174.72	1.018817E-2	1.78
Mercury	100.00%	0.68	100.00%	1.83	0.00%	27.40	100.00%	-	2.51	1.018817E-2	0.03
HPAHs	100.00%	1.54	100.00%	77.60	0.00%	1,164.06	100.00%	-	79.14	1.018817E-2	0.81
LPAHs	100.00%	-	100.00%	51.74	0.00%	776.04	100.00%	-	51.74	1.018817E-2	0.53
PCBs	100.00%	0.21	100.00%	-	0.00%	-	100.00%	-	0.21	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Arkema Inc.	25 & 67 Main Street	Belleville	NJ	07109

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	4.99	2.377E-6	1.640E-6
Lead	0.01	3,200,000.00	1.78	5.563E-7	5.563E-9
Mercury	0.95	42,000.00	0.03	6.081E-7	5.777E-7
HPAHs	0.05	240,000.00	0.81	3.360E-6	1.680E-7
LPAHs	0.01	170,000.00	0.53	3.101E-6	3.101E-8
PCBs	12.87	26,000.00	0	8.229E-8	1.059E-6
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Arkema Inc.	25 & 67 Main Street	Belleville	NJ	07109

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.769E-3	4.99	3,710.	1.769E-3	1.221E-3
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	6.054E-4	1.78	1,935.64	6.054E-4	6.054E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	5.799E-4	0.03	24.33	5.799E-4	5.509E-4
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.821E-5	0.81	3.56	1.821E-5	9.105E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.717E-5	0.53	2.39	1.717E-5	1.717E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	1.047E-5	0	0.27	1.047E-5	1.347E-4
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Arkema Inc.	**25 & 67 Main Street**	**Belleville**	**NJ**	**07109**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal/day discharged	
	# hours/per day discharged	
5	#days/week discharged (FDR) (PAP-000351693)	
250	#day/year (FDR) (PAP-00351581)	
49,734,575	calc gal/yr discharged; (FDR) (PAP-00351618, PAP-00351695-701, PAP-00351683-92, PAP-351582-595)	115,000 gal/day: PAP-000352197-219
1921	Yr Ops started (FDR)	
1989	Yr Ops ceased (APQ)	
68	calc #yrs facility operated	1989 consistent with having 1988 process information
Copper (Cu)		
68	#yrs facility operated	
0.57	calc mg/L COC discharged; (FDR) (PAP-00351618, PAP-00351695-701, PAP-00351683-92, PAP00352197-219)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
7,312	calc kg COC discharged	
Lead (Pb)		
68	#yrs facility operated	
0.18	calc mg/L COC discharged; (FDR) (PAP-00351618, PAP-00351695-701, PAP-00351683-92, PAP00352197-219)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,240	calc kg COC discharged	
Mercury (Hg)		
68	#yrs facility operated	
0.0023	calc mg/L COC discharged; (FDR) (PAP-00351618, PAP-00351695-701, PAP-00351683-92, PAP00352197-219)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
29	calc kg COC discharged	
HPAHs		
68	#yrs facility operated	
1.6	calc mg/L COC discharged; (FDR) (PAP-00351618, PAP-00351695-701, PAP-00351683-92, PAP00352197-219)	
10%	% O&G that is considered PAHs	
60%	% PAHs in O&G considered as HPAHs	
0.10	calc mg/L COC	deed notice for PAHs approved by NJDEP (APQ); O&G detected cut 50% to account for other potential non-PAH organic carbons in effluent.
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,242	calc kg COC discharged	
LPAHs		
68	#yrs facility operated	
1.6	calc mg/L HPAHs in reported O&G discharge analysis provided with 1977 PVSC application (PAP00351695, 700-701)	
10%	% O&G that is considered PAHs	
40%	% PAHs in O&G considered as LPAHs	
0.06	calc mg/L COC	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
828	calc kg COC discharged	
PCBs		
49	#yrs facility operated within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility operated within DDx Timeline	
	calc mg/L COC discharged	(no data in 1975 analysis provided with 1977 PVSC application (PAP 00351695, 700-701); no indication of use/presence (APQ))
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
38	#yrs facility operated within Dieldrin Timeline	
	calc mg/L COC discharged	(no data in 1975 analysis provided with 1977 PVSC application (PAP 00351695, 700-701); no indication of use/presence (APQ))
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
68	#yrs facility operated	
	calc mg/L COC discharged	(no data in 1975 analysis provided with 1977 PVSC application (PAP 00351695, 700-701); no indication of use/presence (APQ))
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
44	#yrs facility operated within 2,4-D Timeline	
	calc mg/L COC discharged	(no data in 1975 analysis provided with 1977 PVSC application (PAP 00351695, 700-701); no indication of use/presence (APQ))
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
41	#yrs facility operated within 2,4,5-T Timeline	
	calc mg/L COC discharged	(no data in 1975 analysis provided with 1977 PVSC application (PAP 00351695, 700-701); no indication of use/presence (APQ))
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility operated within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	(no data in 1975 analysis provided with 1977 PVSC application (PAP 00351695, 700-701); no indication of use/presence (APQ))
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
7,312	kg Copper	
2,240	kg Lead	
29	kg Mercury	
1,242	kg HPAHs	
828	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
4.08	FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University
7.67	ACRES - TOTAL SITE AREA (acres)	FDR page 1	Only the 25 Main Street site is reported to have had manufacturing (FDR, pages 3-6).
2.25	ACRES - AFFECTED AREA	Rough estimate of site area with exposed fill determined from review of historical aerial photographs 1995-2020 and Figure on PAP-00466498.	
4,046.86	METERS^2/ACRE		
9,105	METERS^2 (AFFECTED AREA)		
0.0001	METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
1	METERS^3/YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER	
1921	Year site operations began	Wallace & Tiernan (division of Arkema) developed the site and began operations (FDR, page 2)	
1989	Year site processing and storage operations ceased	Arkema sold all three parcels in 1989 (FDR, page 2)	
68	NUMBER YEARS DISCHARGE	Arkema liability 68 years, 1921 to 1989 (FDR, page 1)	
62	METERS^3 (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
1,763	KG/M^3 SOIL DENSITY	Fill reported as fine to medium sand with trace silt and gravel (FDR, page 11). Bulk density range 1346 KG/M^3 to 2179 KG/M^3, so use average. (http://structx.com/Soil_Properties_002.html)	
109,160	KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)			
68	YEARS DISCHARGED		
302	MG/KG (MAX CONCENTRATION)	Copper was found in on-site soil sample S-7 (0.-0.5 ft bgs) (FDR, page 10; PAP-00352577).	
0.000001	kg per mg (Merck Index)		
32.97	KILOGRAMS DISCHARGED		
Lead (Pb)			
68	YEARS DISCHARGED		
318	MG/KG (MAX CONCENTRATION)	Lead concentration based on S-7 result (PAP-00726534)	
0.000001	kg per mg (Merck Index)		
34.71	KILOGRAMS DISCHARGED		
Mercury (Hg)			
68	YEARS DISCHARGED		
6.2	MG/KG (MAX CONCENTRATION)	Mercury was found in on-site soil sample S-7 (0.0-0.5 ft bgs) (FDR, page 10, PAP-00352577).	
0.000001	kg per mg (Merck Index)		
0.68	KILOGRAMS DISCHARGED		

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)		Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.
68	YEARS DISCHARGED	
14.1	MG/KG (TOTAL PAH AVERAGE CONCENTRATION)	Sum of Benzo(a)pyrene Equivalent conversion concentrations
0.000001	kg per mg (Merck Index)	
1.54	KILOGRAMS DISCHARGED	
PAHs (others detected)		
68	YEARS DISCHARGED	
0	MG/KG (TOTAL PAH MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
0.00	KILOGRAMS DISCHARGED	
PCBs		
59	YEARS DISCHARGED	Number of years reflect a 1930 start date for PCBs.
1.89	MG/KG (MAX CONCENTRATION)	Maximum post-excavation concentration (Background, FDR Table, page 8).
0.000001	kg per mg (Merck Index)	
0.21	KILOGRAMS DISCHARGED	
DDx		
0	YEARS DISCHARGED within DDx Timeline	
	MG/KG (MAX CONCENTRATION)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.00	KILOGRAMS DISCHARGED	
Dieldrin		
0	YEARS DISCHARGED within Dieldrin Timeline	
	MG/KG (MAX CONCENTRATION)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.00	KILOGRAMS DISCHARGED	
Dioxins/Furans	NONE FOUND IN AVAILABLE DOCUMENTATION	
0	YEARS DISCHARGED	
0	MG/KG (MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
0.00	calc kg COC discharged	

PAHs used in this were actual concentrations from soil sample S-7 (North Yard Area soil sample - see PAP-00726495-530).

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	11.000	1.0	11.0000
Benzo(a)anthracene	9.800	0.1	0.9800
Benzo(b)fluoranthene	14.000	0.1	1.4000
Benzo(k)fluoranthene	4.000	0.01	0.0400
Chrysene	12.000	0.001	0.0120
Dibenz(a,h)anthracene	0.000	1.0	0.0000
Indeno(1,2,3-cd)pyrene	6.600	0.1	0.6600

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **14.1**

SUMMARY CMASS ESTIMATES:

32.97	kg Copper
34.71	kg Lead
0.68	kg Mercury
1.54	kg PAHs (Benzo(a)pyrene Equivalent)
0.00	kg PAHs (Other)
0.21	kg PCBs
0.00	kg DDx
0.00	kg Dieldrin
0.00	kg Dioxins/Furans

70.10 MASS (KG) DISCHARGED FROM SURFACE SOIL

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Arkema Inc.

25 & 67 Main Street	**Belleville**	**NJ**	**07109**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
3.481E-6	10.0%	Periodic Noncompliacne	NOVs issued in 1988 for copper and lead in wastewater discharge samples (PAP-00351641; PAP-00351653). The December 1989 Report of Inspection noted outdoor soil staining due to oil from leaking indoor machinery. There was a heavily stained drum storage area in the North Yard. Exhaust ventilators for the plating room for Building 3 had condensate drains that were discharging to the stained soil below (PAS-00102607). There was a former spill in the location of the warehouse loading bay, one sample collected - had high PAHs. A compressor on the inside of the building discharged blowdown to the outside. When the boiler for this building was in operation, it also appeared to have discharged blowdown to the exterior (PAS-00102606-07). According to the ECRA Sampling Report and Phase II Sampling Plan, the associated stained soil was later removed (PAS-00102639-40). A compressor on the inside of the building discharged blowdown to the outside. When the boiler for this building was in operation, it also appeared to have discharged blowdown to the exterior (PAS-00102606-07). According to the ECRA Sampling Report and Phase II Sampling Plan, the associated stained soil was later removed (PAS-00102639-40).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.133E-6

AP_ABS	3.133E-6

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Arkema Inc.

25 & 67 Main Street	**Belleville**	**NJ**	**07109**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
1.913E-3	10.0%	Periodic Noncompliacne	NOVs issued in 1988 for copper and lead in wastewater discharge samples (PAP-00351641; PAP-00351653). The December 1989 Report of Inspection noted outdoor soil staining due to oil from leaking indoor machinery. There was a heavily stained drum storage area in the North Yard. Exhaust ventilators for the plating room for Building 3 had condensate drains that were discharging to the stained soil below (PAS-00102607). There was a former spill in the location of the warehouse loading bay, one sample collected - had high PAHs. A compressor on the inside of the building discharged blowdown to the outside. When the boiler for this building was in operation, it also appeared to have discharged blowdown to the exterior (PAS-00102606-07). According to the ECRA Sampling Report and Phase II Sampling Plan, the associated stained soil was later removed (PAS-00102639-40). A compressor on the inside of the building discharged blowdown to the outside. When the boiler for this building was in operation, it also appeared to have discharged blowdown to the exterior (PAS-00102606-07). According to the ECRA Sampling Report and Phase II Sampling Plan, the associated stained soil was later removed (PAS-00102639-40).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	1.722E-3

AP_ABS	1.722E-3

Allocation Facility Cmass Calculation

Ashland Inc.	221 Foundry Street	Newark	NJ	07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	-	10.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	-	10.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	-	10.00%	-	0	1.018817E-2	0
HPAHs	100.00%	60.94	100.00%	-	0.00%	12.34	10.00%	11.0	62.04	1.018817E-2	0.63
LPAHs	100.00%	603.62	100.00%	-	0.00%	8.23	10.00%	7.4	604.36	1.018817E-2	6.16
PCBs	100.00%	-	100.00%	-	0.00%	-	10.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	10.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	10.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	10.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Ashland Inc.	**221 Foundry Street**	**Newark**	**NJ**	**07105**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0.63	2.634E-6	1.317E-7
LPAHs	0.01	170,000.00	6.16	3.622E-5	3.622E-7
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Ashland Inc.	221 Foundry Street	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.427E-5	0.63	2.79	1.427E-5	7.137E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	2.006E-4	6.16	27.94	2.006E-4	2.006E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Ashland Inc.	**221 Foundry Street**	**Newark**	**NJ**	**07105**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
2,150	gal discharged per day PAP00089937	
	# hours/per day discharged	1984 PVSC Permit Application
5	#days/week discharged	1995 Ashland Letter regarding PVSC Permit #20402793
52	#weeks/yr discharged	
559,000	calc gal/yr discharge	Discharged all wastewater to industrial sewer since ownership (1968), overflow from Roanoke St
		CSO storm sewer discharges to Passaic River during high precipitation. Events.
1968	Yr Ops started	
1992	Yr Ops ceased	
24	calc #yrs facility operated	
Copper (Cu)		
24	#yrs facility discharged	
-	calc mg/L COC discharged	1986 sampling ND
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
24	#yrs facility discharged	
-	calc mg/L COC discharged	1986 sampling ND
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
24	#yrs facility discharged	
-	calc mg/L COC discharged	1986 sampling ND
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
24	#yrs facility discharged	Permit Application Files (PAP-00089937)
162	calc mg/L TOC	320 mg/l TOC outlet 20403791
2.5%	% TOC that is considered O&G	4 mg/l TOC outlet 20403792
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.2	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
12.34	calc kg COC discharged	
LPAHs		
24	#yrs facility discharged	Permit Application Files (PAP-00089937)
162	calc mg/L TOC	320 mg/l TOC outlet 20403791
2.5%	% TOC that is considered O&G	4 mg/l TOC outlet 20403792
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.16	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
8.23	calc kg COC discharged	
PCBs		
10	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
5	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
20	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
24	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
25	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
18	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
8	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
12.3	kg HPAHs	
8.2	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	1990 NJDEP Letter states NJPDES Permit #NJ0076641 for surface water discharge
	# days/week discharged	No other information…estimated based on discharge to PVSC
	# weeks/yr discharged	
500,000	# gals/yr directly discharged	
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft2 per acre	
1968	Yr Ops started	
1992	Yr Ops ceased	
24	calc #yrs facility operated	
Copper (Cu)		
24	#yrs facility discharged	1986 Sampling ND
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
24	#yrs facility discharged	1986 Sampling ND
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
24	#yrs facility discharged	1986 Sampling ND
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
24	#yrs facility discharged	Permit Application Files (PAP-00089937)
162	calc mg/L TOC	320 mg/l TOC outlet 20403791
2.5%	% TOC that is considered O&G	4 mg/l TOC outlet 20403792
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.24	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
11.04	calc kg COC discharged	
LPAHs		
24	#yrs facility discharged	Permit Application Files (PAP-00089937)
162	calc mg/L TOC	320 mg/l TOC outlet 20403791
2.5%	% TOC that is considered O&G	4 mg/l TOC outlet 20403792
10%	% O&G that is considered PAHs	
40%	% PAHs considered as PAHs	
0.16	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
7.36	calc kg COC discharged	
PCBs		
10	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
5	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
20	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
24	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
25	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
18	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
8	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
11.04	kg HPAHs	
7.36	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information # hours/day discharged # days/week discharged # weeks/yr discharged	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
4.08	FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University
11	ACRES - TOTAL SITE AREA (acres)	FDR, p 1	
7	ACRES - AFFECTED AREA	Rough estimate of site area with exposed soil determined from review of historical aerial photographs 1995-2020 (Google Earth Pro) and Figure 1 Allocation Facilities map.	
4,046.86	METERS^2/ACRE		
26,305	METERS^2 (AFFECTED AREA)		
0.0001	METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
3	METERS^3/YEAR (ERODED SOIL VOLUME)		
1968	Year site operations began	1968 - Ashland Oil, Inc. acquired the property from Lasp Realty, Inc., in June 1968 (PAP-00089138; PAS-00050517; FDR, p 1)	
2003	Year site was purchased from Ashland	1992 - All facility buildings, process lines, and storage tanks, as well as on-site railroad sidings, were dismantled and removed from the site in 1992 (PAP-00090523; FDR, p 1)	2003 - Foundry Street Development LLC acquired the property in 2003 (PAS-00000057; FDR, p 1)
35	NUMBER YEARS DISCHARGE	1999 - approx 750 tons of soil containing tar/asphalt were excavated from AOC-1 to 4 ft bgs (PAP-00089701). Area approx 4600 sq ft (0.106 acres) (PAP-00089764). This remediation is not accounted for in the years liable because it's such a small	
92	METERS^3 (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
1,963	KG/M^3 SOIL DENSITY	Surface soils during drilling were loose/non-cohesive silt, fine to coarse sand, clay, gravel, wood, cobbles, cement and brick fragments, and cinders (PAP-00089967) Bulk density of silty sand and gravel and clay range 1442 KG/M3 to 2483 KG/M3, so use average. (http://structx.com/Soil_Properties_002.html)	
180,680	KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)		Site is not located on historic fill (FDR pg 5)	
35	YEARS DISCHARGED	Copper Cyanide handled at facility (FDR pg 2).	
0	MG/KG (MAX CONCENTRATION)	Concentration 0 mg/kg because the only available soil sample (MW-4P) was taken of the viscous asphalt-like product present in the upper fill material surrounding well MW-4 (PAP-00089980).	
0.000001	kg per mg (Merck Index)		
0	KILOGRAMS DISCHARGED		

Lead (Pb)		
35	YEARS DISCHARGED	
0	MG/KG (AVERAGE CONCENTRATION)	Concentration 0 mg/kg because the only available soil sample (MW-4P) was taken of the viscous asphalt-like product present in the upper fill material surrounding well MW-4 (PAP-00089980).
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
Mercury (Hg)		
35	YEARS DISCHARGED	
0.0	MG/KG (MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)		total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.
35	YEARS DISCHARGED	
308.3	MG/KG (TOTAL PAH MAX CONCENTRATION)	Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations.
0.000001	kg per mg (Merck Index)	
56	KILOGRAMS DISCHARGED	
PAHs (others detected)		
35	YEARS DISCHARGED	
113	MG/KG (TOTAL PAH MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
20	KILOGRAMS DISCHARGED	
PCBs		
0	YEARS DISCHARGED	
	MG/KG (MAX OF REPORTED CONCENTRATIONS)	
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
DDx		
0	YEARS DISCHARGED within DDx Timeline	
	MG/KG (MAX CONCENTRATION)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
Dieldrin		
0	YEARS DISCHARGED within Dieldrin Timeline	
	MG/KG (MAX CONCENTRATION)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
Dioxins/Furans	NONE FOUND IN AVAILABLE DOCUMENTATION	
0	YEARS DISCHARGED	
0	MG/KG (MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
0	calc kg COC discharged	

Sample 40-1 (PAP-00123631, Figure 9)

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	200.000	1.0	200.0000
Benzo(a)anthracene	240.000	0.1	24.0000
Benzo(b)fluoranthene	360.000	0.1	36.0000
Benzo(k)fluoranthene	0.000	0.01	0.0000
Chrysene	250.000	0.001	0.2500
Dibenz(a,h)anthracene	35.000	1.0	35.0000
Indeno(1,2,3-cd)pyrene	130.000	0.1	13.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **308.3**

PAH values from sample SB-124 (0-0.5 ft bgs) (PAP-00089739, Table 13)

Acenaphthene	14
Anthracene	22
Fluorene	18
Naphthalene	ND
Fluoranthene	59
SUM	113

SUMMARY CMASS ESTIMATES:	
0.00	kg Copper
0.00	kg Lead
0.00	kg Mercury
55.69	kg PAHs (Benzo(a)pyrene Equivalent)
20.42	kg PAHs (Other)
0.00	kg PCBs
0.00	kg DDx
0.00	kg Dieldrin
0.00	kg Dioxins/Furans

76.11	MASS (KG) DISCHARGED FROM SURFACE SOIL

Discharge Calcs	Direct Discharge Information	NOTES, COMMENTS, REFERENCES		
	4.08 FEET/YEAR AVERAGE PRECIPITATION per Rutgers Univ.			
	7.5 ACRES - TOTAL SITE AREA (acres)			
	0.46 ACRES - AFFECTED AREA	Dike area was roughly 100 ft x 200 ft (PAP-00089932 p 2). 20000 sf = 0.4591 acre		
	4,046.86 METERS^2/ACRE			
	1,858 METERS^2 (AFFECTED AREA)			
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.		
	0 METERS^3/YEAR (ERODED SOIL VOLUME)			
	1979 YEAR OF DOCUMENTED FUEL OIL SPILL	#4 fuel oil spilled from AST on March 6, 1979 (PAP-00089932)		
	2003 Year site was purchased from Ashland	1992 - All facility buildings, process lines, and storage tanks, as well as on-site railroad sidings, were dismantled and removed from the site in 1992 (PAP-00090523; FDR, p 1)	Tank 215 adjacent to tank farm in west parcel. Entire tank farm was within dike 1994 - remediation of LNALP impaced soils and soils exceeding 10,000 mg/kg total organic contaminants (PAP-00089622). Description of remediation not available, will assume it was not a type to address COCs in this spreadsheet	2003 - Foundry Street Development LLC acquired the property in 2003 (PAS-00000057; FDR, p 1)
	24 NUMBER YEARS DISCHARGE			
	4 METERS^3 (TOTAL SOIL VOLUME DISCHARGED OVER TIME)			
	1,963 KG/M^3 SOIL DENSITY	Surface soils during drilling were loose/non-cohesive silt, fine to coarse sand, clay, gravel, wood, cobbles, cement and brick fragments, and cinders (PAP-0009964, 7) Bulk density of silty sand and gravel and clay range 1442 KG/M3 to 2483 KG/M3, so use average. (http://structx.com/Soil_Properties_002.html)		
	8,751 KILOGRAMS (TOTAL WT OF SOIL AFFECTED OVER TIME)			
Copper (Cu)				
	24 YEARS DISCHARGED			
	0 MG/KG (MAX CONCENTRATION)			
	0.000001 kg per mg (Merck Index)			
	0 KILOGRAMS DISCHARGED			
Lead (Pb)				
	24 YEARS DISCHARGED			
	0 MG/KG (MAX CONCENTRATION)			
	0.000001 kg per mg (Merck Index)			
	0 KILOGRAMS DISCHARGED			

Mercury (Hg)

24	YEARS DISCHARGED
0.0	MG/KG (MAX CONCENTRATION)
0.000001	kg per mg (Merck Index)
0	KILOGRAMS DISCHARGED

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.

PAHs number 5 fuel oil, values from "Characteristics of Spilled Oils, Fuels, and Petroleum Products" Wang 2003, PAHs listed on p 132 (0.0% weathered values used)

24	YEARS DISCHARGED
600.38	MG/KG (TOTAL PAH AVERAGE CONCENTRATION)
0.000001	kg per mg (Merck Index)
5.25	KILOGRAMS DISCHARGED

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	449.350	1.0	449.3500
Benzo(a)anthracene	551.510	0.1	55.1510
Benzo(b)fluoranthene	125.740	0.1	12.5740
Benzo(k)fluoranthene	34.080	0.01	0.3408
Chrysene	11887.000	0.001	11.8870
Dibenz(a,h)anthracene	68.560	1.0	68.5600
Indeno(1,2,3-cd)pyrene	25.150	0.1	2.5150

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **600.4**

PAHs (others detected)

24	YEARS DISCHARGED
66640	MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001	kg per mg (Merck Index)
583.20	KILOGRAMS DISCHARGED

From Wang 2003 p 132 (data presented in ug/g)	
Acenaphthylene	33.69
Acenaphthene	167.5
Phenanthrene	24130
Anthracene	22779
Benzo(g,h,i)perylene	83.87
Fluorene	4986
Naphthalene	14460
SUM	66640.06

PCBs

24	YEARS DISCHARGED within PCBs Timeline
0	MG/KG (MAX OF REPORTED CONCENTRATIONS)
0.000001	kg per mg (Merck Index)
0	KILOGRAMS DISCHARGED

DDx

24	YEARS DISCHARGED within DDx Timeline
	MG/KG (CONCENTRATION)
3.785	L per gallon (Merck Index)
0.000001	kg per mg (Merck Index)
0	KILOGRAMS DISCHARGED

NO CONCENTRATION INFO

Dieldrin

24	YEARS DISCHARGED within Dieldrin Timeline
	MG/KG (CONCENTRATION)
3.785	L per gallon (Merck Index)
0.000001	kg per mg (Merck Index)
0	KILOGRAMS DISCHARGED

NO CONCENTRATION INFO

Dioxins/Furans

24	YEARS DISCHARGED
	MG/KG (CONCENTRATION)
0.000001	kg per mg (Merck Index)
0	calc kg COC discharged

NO CONCENTRATION INFO

SUMMARY CMASS ESTIMATES:

0.00	kg Copper
0.00	kg Lead
0.00	kg Mercury
5.25	kg Benzo(a)pyrene Equivalent
583.20	kg PAHs MAX
0.00	kg PCBs
0.00	kg DDx
0.00	kg Dieldrin
0.00	kg Dioxins/Furans

588.45 MASS (KG) DISCHARGED BY OVERLAND FLOW

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Ashland Inc.

221 Foundry Street	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
4.939E-7	10.0%	Periodic Noncompliacne	The facility received a notice of violation from PVSC on August 10, 1990, for failure to maintain continuous monitoring of facility outfalls (PAS-00050635). Ashland was notified on May 26, 1971, to cease pollution at once, and warned against discharge to the sanitary sewer without proper pretreatment, after a sample of washings entering into the Roanoke Avenue Storm Sewer at Avenue P. was “not only highly polluting,” but contained flammable and explosive materials (PAP-00089153). Inspections conducted by NJDEP personnel on March 13 and 28, 1979, noted spillage and/or leakage throughout Ashland’s facility. Areas noted included the following: all tank farms, loading/unloading manifolds, pipe connections, sumps, and the storm sewer system. According to NJDEP, corrective measures were discussed with Ashland’s officials who stated that it would not be economically feasible for the company to implement all of the remedies required by NJDEP.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	4.445E-7

AP_ABS	4.445E-7

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Ashland Inc.

221 Foundry Street	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
2.720E-6	10.0%	Periodic Noncompliacne	The facility received a notice of violation from PVSC on August 10, 1990, for failure to maintain continuous monitoring of facility outfalls (PAS-00050635). Ashland was notified on May 26, 1971, to cease pollution at once, and warned against discharge to the sanitary sewer without proper pretreatment, after a sample of washings entering into the Roanoke Avenue Storm Sewer at Avenue P. was “not only highly polluting,” but contained flammable and explosive materials (PAP-00089153). Inspections conducted by NJDEP personnel on March 13 and 28, 1979, noted spillage and/or leakage throughout Ashland’s facility. Areas noted included the following: all tank farms, loading/unloading manifolds, pipe connections, sumps, and the storm sewer system. According to NJDEP, corrective measures were discussed with Ashland’s officials who stated that it would not be economically feasible for the company to implement all of the remedies required by NJDEP.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	2.448E-6

AP_ABS	2.448E-6

Allocation Facility Cmass Calculation

Atlantic Richfield (ARCO)	86 Doremus Avenue	Newark	NJ	07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	2.	100.00%	-	0.00%	343.38	100.00%	345.1	347.06	1.018817E-2	3.54
LPAHs	100.00%	9.16	100.00%	-	0.00%	228.92	100.00%	230.0	239.2	1.018817E-2	2.44
PCBs	100.00%	5.03	100.00%	-	0.00%	-	100.00%	-	5.03	1.018817E-2	0.05
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Atlantic Richfield (ARCO)	86 Doremus Avenue	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	3.54	1.473E-5	7.367E-7
LPAHs	0.01	170,000.00	2.44	1.434E-5	1.434E-7
PCBs	12.87	26,000.00	0.05	1.971E-6	2.537E-5
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Atlantic Richfield (ARCO)	86 Doremus Avenue	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	7.985E-5	3.54	15.63	7.985E-5	3.993E-6
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	7.939E-5	2.44	11.06	7.939E-5	7.939E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	2.507E-4	0.05	6.47	2.507E-4	3.226E-3
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Atlantic Richfield (ARCO)	**86 Doremus Avenue**	**Newark**	**NJ**	**07105**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	West Yard Sanitary and Storm water discharge was to the PVSC. No evidence of any permit
	# hours/per day discharged	for these discharges. Assume connect to PVSC as same site as Chevron.
	#days/week discharged	
	#weeks/yr discharged	Assume similar flow as for direct discharge to the Passaic River
9,600,000	calc gal/yr discharge	
1930	Yr Ops started	
1951	Yr Ops ceased	
21	calc #yrs facility operated	
Copper (Cu)		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
21	#yrs facility discharged	Based on Chevron
7.5	calc mg/L O&G	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.5	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
343	calc kg COC discharged	
LPAHs		
21	#yrs facility discharged	Based on Chevron
7.5	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.3	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
229	calc kg COC discharged	
PCBs		
22	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
12	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
2	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
6	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
7	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
2	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
343	kg HPAHs	
229	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	PA/SI Report (2014) PAP00084000 indicates no wastewater treatment, septic systems or discharge
	# days/week discharged	to sewer.
	# weeks/yr discharged	No evidence of sewer sampling - no sewer data
9,647,180	# gals/yr directly discharged	PETROLEUM Terminal - estimating based on Chevron since same location at 86 Doremius Ave
		no storm drains found in the West Yard at this time.
4.08	ft; 30yr average annual precipitation per Rutgers information	
14.50	acres	
43,560	ft2 per acre	
1930	Yr Ops started	
1951	Yr Ops ceased	
21	calc #yrs facility operated	
Copper (Cu)		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
21	#yrs facility discharged	
7.50	calc mg/L O&G	Based on Chevron
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.45	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
345.06	calc kg COC discharged	
LPAHs		
21	#yrs facility discharged	
7.50	calc mg/L O&G	Based on Chevron
10%	% O&G that is considered PAHs	
40%	% COC in O&G considered as PAHs	
0.30	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
230.04	calc kg COC discharged	
PCBs		
22	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
12	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
2	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
21	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
6	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
7	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
2	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
345.0627	kg HPAHs	
230.0418	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES		
4.083333333	FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.			
14	ACRES - TOTAL SITE AREA (acres)				
4.5	ACRES - AFFECTED AREA	FDR page 2: Area A consists of 2.5 undeveloped acres located south of the West Yard. Additionally, based on google earth imagery, and creating polygons using measuring tool, an additional 2 acres of bare soil surrounding the tanks in the West and East Yard combined (grassy areas, see 06/2010 image) were estimated. Total of 4.5 acres of exposed soil. (Google Earth pro image)	Facility is adjacent to Passaic River (East Yard of property boundary abuts river). Chevron FDR page 1.		
4,046.86	METERS^2/ACRE				
18,211	METERS^2 (AFFECTED AREA)				
0.0001	METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.			
2	METERS^3/YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER			
1930	Year site operations began	FDR Page 1: ARCO owned and operated the facility sometime in the 1930s. This calculation assumes 1930.	The Newark Terminal was operated as a petroleum storage and distribution facility (Chevron FDR Page 1)		
1951	Year site processing and storage operations ceased	FDR Page 1: ARCO conveyed the site to Tide Water Associated Oil Company on July 23, 1951	FDR Page 2: Facility operations were limited to bulk storage	The terminal was used to store and distribute refined petroleum products. It is believed that products were received via a pipeline system and by barge, and that products were distributed via tanker trucks. (Chevron FDR page 1)	Aerial photographs identified 11 tanks at the site and 2 docks that appeared to be leading to the Passaic River in 1943. The West Yard included three additional large storage tanks surrounded by concrete walls, a gasoline pump storage building, and an unlabeled building (Chevron FDR page 2)
21	NUMBER YEARS DISCHARGE	ARCO liability 21 years, 1930 to 1951 (FDR, page 1-2)			
38.242827	METERS3 (TOTAL SOIL VOLUME DISCHARGED OVER TIME)				
1962.5	KG/M3 SOIL DENSITY	Shallow borings from Area A were composed of a mixture of sand, silt, and gravel with varying amounts of brick fragments, rocks, wood and other debris (PAP-00066671, PDF page 8). Used "silty sand and gravel" soil type from http://structx.com/Soil_Properties_002.html. Bulk density range 1442 KG/M3 to 2483 KG/M3, so use average.			
75,052	KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)				
Copper (Cu)					
21	YEARS DISCHARGED	Copper in included in this calculation even though it is not identified as a COC in the FDR (page 4) because it has been detected on site.			
0	MG/KG (MAX CONCENTRATION)	NOTE: No onsite sampling data were available for the time period during which ARCO owned/operated the Terminal; therefore, the data from the Chevron F&T calculation (same location) has been used for these calculations. Set to 0 since less than HF.			
0.000001	kg per mg (Merck Index)				
0	KILOGRAMS DISCHARGED				

Lead (Pb)

21 YEARS DISCHARGED

Maximum concentration in onsite soils (Chevron FDR Page 10, Table)
Concentration changed to 0 mg/kg because the Chevron FDR incorrectly has a concentration of 84,200 mg/kg. The referenced source shows a maximum lead concentration of 8,200 mg/kg (PAP-00339532). This is set to 0 because it is less than HF.

0 MG/KG (MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)
0 KILOGRAMS DISCHARGED

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.

21 YEARS DISCHARGED
26.586 MG/KG (TOTAL PAH MAX CONCENTRATION)

Sum of Benzo(a)pyrene Equivalent conversion concentrations. Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.

Maximum concentrations found in surface sample A-2A (0.0-0.5 ft) (PAP-00066671, PDF pg 38).

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	19.000	1.0	19.0000
Benzo(a)anthracene	12.000	0.1	1.2000
Benzo(b)fluoranthene	23.000	0.1	2.3000
Benzo(k)fluoranthene	26.000	0.01	0.2600
Chrysene	26.000	0.001	0.0260
Dibenz(a,h)anthracene	2.800	1.0	2.8000
Indeno(1,2,3-cd)pyrene	10.000	0.1	1.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **26.6**

0.000001 kg per mg (Merck Index)
2 KILOGRAMS DISCHARGED

PAHs (others detected)

Other PAHs detected = Benzo(g,h,i)perylene, Fluoranthene, Phenanthrene, Pyrene (Figure PAP-00066671, pdf pg 38)

21 YEARS DISCHARGED
MG/KG (TOTAL PAH MAX CONCENTRATION)

Sum of other detected PAHs from Figure PAP-00066671, pdf pg 38 from Sample ID A-2A (0.0-0.5 ft). Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.

122
0.000001 kg per mg (Merck Index)
9 KILOGRAMS DISCHARGED

PCBs

21 YEARS DISCHARGED

Historic aerial photographs revealed that Area A has undergone filling activities, which are the likely source of PCBs (PAP-00066682).

67 MG/KG (MAX OF REPORTED CONCENTRATIONS)

PCB (Aroclor 1254) highest concentrations ranging from 10mg/kg to 67 mg/kg (Area 2; SW-75C at 0-0.5 ft) detected along the southern perimeter. (Chevron FDR page 4)
Historic fill was not a consideration for PCBs concentrations for the purpose of this calculation.

0.000001 kg per mg (Merck Index)
5 KILOGRAMS DISCHARGED

SUMMARY CMASS ESTIMATES:
0.00 kg Copper
0.00 kg Lead
2.00 kg PAHs (Benzo(a)pyrene Equivalent)
9.16 kg PAHs (Other)
5.03 kg PCBs

16.18 MASS (KG) DISCHARGED FROM SURFACE SOIL

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Atlantic Richfield (ARCO)

86 Doremus Avenue	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
2.625E-5	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	2.100E-5

AP_ABS	2.100E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Atlantic Richfield (ARCO)

86 Doremus Avenue	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
3.231E-3	0.0%	Historically Compliant or No Evidence	No information on violations or sloppy practices was identified in the available file material.	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	2.585E-3

AP_ABS	2.585E-3

Allocation Facility Cmass Calculation

Atlas Refining Inc.	142 Lockwood Street	Newark	NJ	07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	190.19	0.00%	1,271.90	100.00%	336.3	526.45	1.018817E-2	5.36
Lead	100.00%	-	100.00%	649.10	0.00%	4,340.85	100.00%	1,147.6	1,796.69	1.018817E-2	18.31
Mercury	100.00%	-	100.00%	0.11	0.00%	0.73	100.00%	0.2	0.3	1.018817E-2	0
HPAHs	100.00%	-	100.00%	1,588.59	0.00%	10,623.71	100.00%	2,808.6	4,397.19	1.018817E-2	44.8
LPAHs	100.00%	-	100.00%	1,059.06	0.00%	7,082.47	100.00%	1,872.4	2,931.46	1.018817E-2	29.87
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Atlas Refining Inc.	**142 Lockwood Street**	**Newark**	**NJ**	**07105**

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	5.36	2.554E-6	1.762E-6
Lead	0.01	3,200,000.00	18.31	5.720E-6	5.720E-8
Mercury	0.95	42,000.00	0	7.372E-8	7.003E-8
HPAHs	0.05	240,000.00	44.8	1.867E-4	9.333E-6
LPAHs	0.01	170,000.00	29.87	1.757E-4	1.757E-6
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	7.507E-9	6.300E-7

Allocation Facility COC Base Scores - Alternative Calulcation

Atlas Refining Inc.	142 Lockwood Street	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.901E-3	5.36	3,986.31	1.901E-3	1.312E-3
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	6.226E-3	18.31	19,905.	6.226E-3	6.226E-5
Mercury	0.95	42,000.00	4,322.53	41,955.96	7.030E-5	0	2.95	7.030E-5	6.679E-5
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.012E-3	44.8	198.01	1.012E-3	5.058E-5
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	9.730E-4	29.87	135.54	9.730E-4	9.730E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	7.507E-9	0	0	7.507E-9	6.300E-7

Facility Bypass Information

Atlas Refining Inc.	**142 Lockwood Street**	**Newark**	**NJ**	**07105**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Dicharge Calcs	POTW Discharge Information	COMMENTS/NOTES
8,576	gal discharged per day (PAS00072817, PAS00072990, PAS00103218)	PVSC Waste Effluent Survey(s), PVSC Permit(s)
-	# hours/per day discharged	
5	#days/week discharged	Discharged all wastewater to sanitary sewer since development of PVSC System prior to that assume to Passaic River
52	#weeks/yr discharged	
2,229,863	calc gal/yr discharge	
1920	Yr Ops started	
2020	Yr Ops ceased	
100	calc #yrs facility operated	
Copper (Cu)		
100	#yrs facility discharged	
1.73	calc mg/L COC discharged (PAS00072970, PAS00103451, PAP00051987, PAS00114149, PAS00072817, PAS00103218)	PVSC Waste Effluent Surveys, PVSC Heavy Metal Source Determination, PVSC Application for Sewer Connection(s), PVSC User Self Monitoring Report(s)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,462.09	calc kg COC discharged	
Lead (Pb)		
100	#yrs facility discharged	
5.91	calc mg/L COC discharged (PAS00072981, PAS00114149, PAS0072970, PAS00103451, PAP00051987)	PVSC Waste Effluent Surveys, PVSC Heavy Metal Source Determination, PVSC Application for Sewer Connection(s), PVSC User Self Monitoring Report(s)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
4,989.95	calc kg COC discharged	
Mercury (Hg)		
100	#yrs facility discharged	
0.0010	calc mg/L COC discharged (PAS00114153, PAP00051987)	PVSC Heavy Metal Source Determination & PVSC User Self Monitoring Report(s)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.84	calc kg COC discharged	
HPAHs		
100	#yrs facility discharged	
241.16	calc mg/L O&G (PAS00051978, PAS00072817, PAS00103218)	calcs used to convert mg/kg O&G to HPAHs; remove if not needed
10%	% O&G that is considered PAHs	PVSC User Self Monitoring Reports, PVSC Permits, PVSC Waste Effluent Surveys
60%	% PAHs considered as HPAHs	
14	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
12,212.30	calc kg COC discharged	
LPAHs		
100	#yrs facility discharged	
241.16	calc mg/L O&G (PAS00051978, PAS00072817, PAS00103218)	calcs used to convert mg/kg O&G to LPAHs; remove if not needed
10%	% O&G that is considered PAHs	PVSC User Self Monitoring Reports, PVSC Permits, PVSC Waste Effluent Surveys
40%	% PAHs considered as LPAHs	
10	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
8,141.53	calc kg COC discharged	
PCBs		
49	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
38	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
100	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
75	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
41	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
1,462.09	kg Copper	
4,989.95	kg Lead	
0.84	kg Mercury	
12,212.30	kg HPAHs	
8,141.53	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	
	# weeks/yr discharged	Assume direct discharge to Passaic prior to PVSC installation (assume 1920)
2,229,683	# gals/yr directly discharged	Assume same discharge concentrations as to the PVSC
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft2 per acre	
1897	Yr Ops started	
1920	Yr Ops ceased	
23	calc #yrs facility operated	
Copper (Cu)		
23	#yrs facility discharged	
1.73	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
336.25	calc kg COC discharged	
Lead (Pb)		
23	#yrs facility discharged	
5.91	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,148	calc kg COC discharged	
Mercury (Hg)		
23	#yrs facility discharged	
0.0010	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.194	calc kg COC discharged	
HPAHs		
23	#yrs facility discharged	
241.16	calc mg/L O&G (PAS00051978, PAS00072817, PAS00103218)	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
14	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,808.6031	calc kg COC discharged	
LPAHs		
23	#yrs facility discharged	
241.16	calc mg/L O&G (PAS00051978, PAS00072817, PAS00103218)	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
10	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,872.4020	calc kg COC discharged	
PCBs		
-8	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-19	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-29	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
23	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-25	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-24	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-29	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
336.2547	kg Copper	
1,147.5954	kg Lead	
0.1941	kg Mercury	
2,808.6031	kg HPAHs	
1,872.4020	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
4.08	FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
2.0356	ACRES - TOTAL SITE AREA (acres)		
0.50	ACRES - AFFECTED AREA	Rough estimate of site area with exposed fill determined from review of historical aerial photographs 1995-2020 and Figure (FDR, Page 7). Assume no asphalt until 1960 (50 percent coverage) and 100 percent after for an estimated 0.5 acres.	
4,046.86	$METERS^2$/ACRE		
2,023	$METERS^2$ (AFFECTED AREA)		
0.0001	METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
0	$METERS^3$/YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER	
1897	Year site operations began	FDR, Page 1	
2020	Year site processing and storage operations ceased	Present (FDR, Page 1)	
123	NUMBER YEARS DISCHARGE	Atlas Refinery liability 123 years, 1897 to present (FDR, page 1)	
25	$METERS^3$ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
1,963	KG/M^3 SOIL DENSITY	Silty sand and gravel (PAS-00052052). Bulk density range for silty sand and gravel 1442 KG/M3 to 2483 KG/M3, so use average. (http://structx.com/Soil_Properties_002.html)	
48,856	KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
		Partially located on historic fill. Metals concentrations on FDR Page 6 are below Historic Fill (FDR page 5-6)	No soil results found for PCBs, PAHs, and pesticides.
Copper (Cu)	NONE FOUND IN AVAILABLE DOCUMENTATION		
123	YEARS DISCHARGED		
0	MG/KG (MAX CONCENTRATION)		
0.000001	kg per mg (Merck Index)		
0.00	KILOGRAMS DISCHARGED		
Lead (Pb)	NONE FOUND IN AVAILABLE DOCUMENTATION		
123	YEARS DISCHARGED		
0	MG/KG (MAX CONCENTRATION)		
0.000001	kg per mg (Merck Index)		
0.00	KILOGRAMS DISCHARGED		
Mercury (Hg)	NONE FOUND IN AVAILABLE DOCUMENTATION		
123	YEARS DISCHARGED		
0	MG/KG (MAX CONCENTRATION)		
0.000001	kg per mg (Merck Index)		
0.00	KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)		Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.	
123	YEARS DISCHARGED	NONE FOUND IN AVAILABLE DOCUMENTATION	
0.0	MG/KG (TOTAL PAH AVERAGE CONCENTRATION)		
0.000001	kg per mg (Merck Index)		
0.00	KILOGRAMS DISCHARGED		
PAHs (others detected)		NONE FOUND IN AVAILABLE DOCUMENTATION	
123	YEARS DISCHARGED		
0	MG/KG (TOTAL PAH MAX CONCENTRATION)		
0.000001	kg per mg (Merck Index)		
0.00	KILOGRAMS DISCHARGED		

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	0.000	1.0	0.0000
Benzo(a)anthracene	0.000	0.1	0.0000
Benzo(b)fluoranthene	0.000	0.1	0.0000
Benzo(k)fluoranthene	0.000	0.01	0.0000
Chrysene	0.000	0.001	0.0000
Dibenz(a,h)anthracene	0.000	1.0	0.0000
Indeno(1,2,3-cd)pyrene	0.000	0.1	0.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **0.0**

PCBs	NONE FOUND IN AVAILABLE DOCUMENTATION	
90	YEARS DISCHARGED	
0	MG/KG (MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
0.00	KILOGRAMS DISCHARGED	
DDx		
0	NONE FOUND IN AVAILABLE DOCUMENTATION	
0	MG/KG (MAX CONCENTRATION)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
Dieldrin		
0	NONE FOUND IN AVAILABLE DOCUMENTATION	
0	MG/KG (MAX CONCENTRATION)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0	KILOGRAMS DISCHARGED	
Dioxins/Furans		
123		
0.00057	MG/KG (MAX CONCENTRATION)	PAS-00125488
0.000001	kg per mg (Merck Index)	
0.000028	calc kg COC discharged	

SUMMARY CMASS ESTIMATES:	
0.00	kg Copper
0.00	kg Lead
0.00	kg Mercury
0.00	kg PAHs (Benzo(a)pyrene Equivalent)
0.00	kg PAHs (Other)
0.00	kg PCBs
0.00	kg DDx
0.00	kg Dieldrin
0.000028	kg Dioxins/Furans

0.000028	MASS (KG) DISCHARGED FROM SURFACE SOIL

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Atlas Refining Inc.

142 Lockwood Street	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
1.361E-5	10.0%	Periodic Noncompliacne	Violations noted in 1972 (PAS-00051992-93; PAS-00052130-31) and 1981 (PAS-00072987) that were related to spills and poor housekeeping practices at the facility. In a March 8, 1989 Civil Action Complaint filed in the Superior Court of New Jersey, PVSC requested the permit be revoked stating that the petroleum hydrocarbon content control system and other pretreatment systems were functioning improperly. The complaint noted that violations were issued to Atlas from 1986 to 1989 (PAS-00052011-12). Atlas installed a Pretreatment System in 1986 (PAS-00052028). In addition, in at least the early 1970s, oil was released as a result of Atlas activities in the railyard near the Central Railroad tracks, and during periods of rainfall this material drained towards Blanchard Street and entered the catch basin and thus the Passaic River.	0.0%	0% Cooperation with conduct of allocation and requests for related information	1.497E-5

AP_ABS	1.497E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Atlas Refining Inc.

142 Lockwood Street	**Newark**	**NJ**	**07105**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
1.502E-3	10.0%	Periodic Noncompliacne	Violations noted in 1972 (PAS-00051992-93; PAS-00052130-31) and 1981 (PAS-00072987) that were related to spills and poor housekeeping practices at the facility. In a March 8, 1989 Civil Action Complaint filed in the Superior Court of New Jersey, PVSC requested the permit be revoked stating that the petroleum hydrocarbon content control system and other pretreatment systems were functioning improperly. The complaint noted that violations were issued to Atlas from 1986 to 1989 (PAS-00052011-12). Atlas installed a Pretreatment System in 1986 (PAS-00052028). In addition, in at least the early 1970s, oil was released as a result of Atlas activities in the railyard near the Central Railroad tracks, and during periods of rainfall this material drained towards Blanchard Street and entered the catch basin and thus the Passaic River.	0.0%	0% Cooperation with conduct of allocation and requests for related information	1.652E-3

AP_ABS	1.652E-3

Allocation Facility Cmass Calculation

Automatic Electro Plating Corp. (Foundry Street Complex)	185 Foundry Street	Newark	NJ	07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	78.44	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	28.07	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	0.35	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	0.00%	86.36	100.00%	-	0	1.018817E-2	0
LPAHs	100.00%	-	100.00%	-	0.00%	57.57	100.00%	-	0	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Automatic Electro Plating Corp. (Foundry Street Complex)	185 Foundry Street	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0	0	0
LPAHs	0.01	170,000.00	0	0	0
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

Automatic Electro Plating Corp. (Foundry Street Complex)	185 Foundry Street	Newark	NJ	07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	0	0	0	0	0
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	0	0	0	0	0
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Automatic Electro Plating Corp. (Foundry Street Complex)	**185 Foundry Street**	**Newark**	**NJ**	**07105**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	
	# hours/per day discharged	
	#days/week discharged	
	#weeks/yr discharged	
2,173,003	# gal/yr discharge (FDR) (PAS-00114059, 114450)	
1970	Yr Ops started (FDR)	
2005	Yr Ops ceased (FDR)	
35	calc #yrs facility operated	
Copper (Cu)		
35	#yrs facility discharged	
0.27	calc mg/L COC discharged (FDR) (PAS-00114059, 114450; PAS-00114059, 114149)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
78	calc kg COC discharged	
Lead (Pb)		
35	#yrs facility discharged	
0.098	calc mg/L COC discharged; (FDR) (PAS-00114059, 114450; PAS-00114059, 114149)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
28	calc kg COC discharged	
Mercury (Hg)		
35	#yrs facility discharged	
0.0012	calc mg/L COC discharged; (FDR) (PAS-00114059, 114450; PAS-00114059, 114149)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.35	calc kg COC discharged	
HPAHs		
35	#yrs facility discharged	
5	calc mg/L O&G (FDR); (PAS-00114059, 114450)	
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
0.30	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
86	calc kg COC discharged	
LPAHs		
35	#yrs facility discharged	
5	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.20	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
58	calc kg COC discharged	
PCBs		
8	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
3	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
18	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
35	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
36	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
16	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
6	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
78	kg Copper	
28	kg Lead	
0	kg Mercury	
86	kg HPAHs	
58	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Automatic Electro Plating Corp. (Foundry Street Complex)

185 Foundry Street	Newark	NJ	07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
0	10.0%	Periodic Noncompliacne	In January 1986, AEP was found to be "in violation of Sections 307 and 308 of the Clean Water Act, 33 U.S.C. Subsection 1317, and Subsection 1318" (PAS-00000193). (Note: Subsection 1317 pertains to toxic and pre-treatment effluent standards and Subsection 1318 pertains to access to records.) "AEP consistently failed to meet electro-plating discharge standards which initiated enforcement actions by the USEPA in 1986" (PAS-00000228). A Civil-Action Suit (86-0920) was filed by USEPA, Region 2, and AEP signed a Consent Decree on April 15, 1987 for settlement of the pending actions (PAS-00000193; PAS-00014392). It is also noted that according to a "Foundry Street Complex Site Inspection" report prepared by NJDEP, dated November 15, 1990, a material storage area located on the south side of Building 19 appeared to be stained and that "a small area, approximately 2' x 2', appeared to be saturated with oil" near the northwest corner of Building 19 (PAS-00105569).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	0

AP_ABS	0

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Automatic Electro Plating Corp. (Foundry Street Complex)

185 Foundry Street	Newark	NJ	07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
0	10.0%	Periodic Noncompliacne	In January 1986, AEP was found to be "in violation of Sections 307 and 308 of the Clean Water Act, 33 U.S.C. Subsection 1317, and Subsection 1318" (PAS-00000193). (Note: Subsection 1317 pertains to toxic and pre-treatment effluent standards and Subsection 1318 pertains to access to records.) "AEP consistently failed to meet electro-plating discharge standards which initiated enforcement actions by the USEPA in 1986" (PAS-00000228). A Civil-Action Suit (86-0920) was filed by USEPA, Region 2, and AEP signed a Consent Decree on April 15, 1987 for settlement of the pending actions (PAS-00000193; PAS-00014392). It is also noted that according to a "Foundry Street Complex Site Inspection" report prepared by NJDEP, dated November 15, 1990, a material storage area located on the south side of Building 19 appeared to be stained and that "a small area, approximately 2' x 2', appeared to be saturated with oil" near the northwest corner of Building 19 (PAS-00105569).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	0

AP_ABS	0

Allocation Facility Cmass Calculation

BASF Catalysts LLC	1 West Central Avenue	East Newark	NJ	07032

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	26.28	100.00%	-	0.23%	1,152.72	100.00%	-	28.92	1.018817E-2	0.29
Lead	100.00%	62.56	100.00%	-	0.23%	268.41	100.00%	-	63.18	1.018817E-2	0.64
Mercury	100.00%	17.12	100.00%	-	0.23%	38.00	100.00%	-	17.21	1.018817E-2	0.18
HPAHs	100.00%	0.48	100.00%	-	0.23%	963.81	100.00%	-	2.69	1.018817E-2	0.03
LPAHs	100.00%	3.37	100.00%	-	0.23%	642.54	100.00%	-	4.84	1.018817E-2	0.05
PCBs	100.00%	0.02	100.00%	-	0.23%	-	100.00%	-	0.02	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.23%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.23%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.23%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

BASF Catalysts LLC	1 West Central Avenue	East Newark	NJ	07032

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.29	1.403E-7	9.682E-8
Lead	0.01	3,200,000.00	0.64	2.011E-7	2.011E-9
Mercury	0.95	42,000.00	0.18	4.174E-6	3.965E-6
HPAHs	0.05	240,000.00	0.03	1.141E-7	5.707E-9
LPAHs	0.01	170,000.00	0.05	2.902E-7	2.902E-9
PCBs	12.87	26,000.00	0	7.837E-9	1.009E-7
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calulcation

BASF Catalysts LLC	1 West Central Avenue	East Newark	NJ	07032

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.044E-4	0.29	219.	1.044E-4	7.205E-5
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	2.189E-4	0.64	699.9	2.189E-4	2.189E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	3.981E-3	0.18	167.02	3.981E-3	3.782E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	6.186E-7	0.03	0.12	6.186E-7	3.093E-8
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.607E-6	0.05	0.22	1.607E-6	1.607E-8
PCBs	12.87	26,000.00	20,066.54	25,795.56	9.967E-7	0	0.03	9.967E-7	1.283E-5
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

BASF Catalysts LLC	**1 West Central Avenue**	**East Newark**	**NJ**	**07032**

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Central Ave	CSO	0.37%	61.94%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal/day discharged	note -owned since 1935....; The 1950 Sanborn map describes the buildings on site as Auto Repair, Auto Paint/Spraying, and Auto Showroom; The Clark Thread Company operated at the East Newark site from 1899 to 1935, including a bleach house (APQ); AP believes POTW constructed in the area by 1924 (APQ)
8	#hours/day discharged (FDR) (PAP-000-50552)	
286	#days/yr discharged (PAP-00094033)	
5	#days/week discharged	
52	#weeks/yr discharged	
8,697,252	calc gal/yr discharge;	(FDR) (PAP-00050552, PAP-00054004, PAP-00054015, PAP-0050482, PAP-00050569, PAP-00054033)
1957	Yr Ops started (FDR)	
2009	Yr Ops ceased (FDR)	
52	calc #yrs facility operated	
Copper (Cu)		
52	#yrs facility operated	
0.67	calc mg/L; (FDR) (PAP-00050552, PAP-00054004, PAP-00054015, PAP-00050504, PAP-000050569, PAP-00054033)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,153	calc kg COC discharged	
Lead (Pb)		
52	#yrs facility discharged	
0.157	calc mg/L; (FDR) (PAP-00050552, PAP-00054004, PAP-00054015, PAP-00050504, PAP000050569, PAP-00054033)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
268	calc kg COC discharged	
Mercury (Hg)		
52	#yrs facility discharged	
0.022	calc mg/L; (FDR) (PAP-00050552, PAP-00054004, PAP-00054015, PAP-00050504, PAP000050569, PAP-00054033)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
38	calc kg COC discharged	
HPAHs		
52	#yrs facility discharged	
9.4	calc O&G mg/L; (FDR) (PAP-00050552, PAP-00054004, PAP-00054015, PAP000050569, PAP-00054033)	use of PAH-containing materials, eg, fuel oil stored in ASTs/USTs used to power equipment; historic coal pile on northern part of site, use discontinued in 1970s; boilers/incinerators used on site
10%	% O&G that is considered HPAHs	
60%	% PAHs considered as PAHs	
0.6	calc mg/L HPAHs in reported TOC discharge analysis provided with 2000 permit application (PAP-00050573)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
964	calc kg COC discharged	
LPAHs		2000 permit application re LPAH naphthalene - "expected to be present" (PAP-00050571)
52	#yrs facility discharged	
9.4	calc O&G mg/L; (FDR) (PAP-00050552, PAP-00054004, PAP-00054015, PAP000050569, PAP-00054033)	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.4	calc mg/L LPAHs in reported TOC discharge analysis provided with 2000 permit application (PAP-00050573)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
643	calc kg COC discharged	
PCBs		2000 permit application - "known to be absent" (PAP-00050571)
21	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		2000 permit application - "known to be absent" (PAP-00050571)
16	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		2000 permit application - "known to be absent" (PAP-00050571)
31	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		2000 permit application - "known to be absent" (PAP-00050571)
52	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		2000 permit application - "known to be absent" (PAP-00050571)
53	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		2000 permit application - "known to be absent" (PAP-00050571)
29	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		2000 permit application - "known to be absent" (PAP-00050571)
19	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
1,153	kg Copper	
268	kg Lead	
38	kg Mercury	
964	kg HPAHs	
643	kg LPAHs	
-	kgPCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct DIscharge Information	COMMENTS/NOTES
	# hours/day discharged	
	#days/week discharged	Permit applications and surveys indicate storm water and other waste streams (e.g., boiler blowdown all piped to sanitary sewer); facility believes this was the case as early as 1948 (PAP-00054002, PAP-00054004, PAP-00050482, PAP-00050274, PAP-00054048, PAP-00050504, PAP-00050571)
	#weeks/yr discharged	
	gals/yr directly discharged	
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres;	
43,560	ft2 per acre	
1957	Yr Ops started (FDR)	
2009	Yr Ops ceased (FDR)	
52	calc #yrs facility operated	
Copper (Cu)		
52	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
52	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
52	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
52	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
52	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
21	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
16	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
31	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
52	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
53	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
29	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
19	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

DISCHARGE CALCULATIONS	DIRECT DISCHARGE INFORMATION	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
4.08	FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
2.20	ACRES - TOTAL SITE AREA (acres)	Total site area changed based on the revised FDR (FDR, p 1).	Manufacturer of precious metal coating product-ink, powder, and solution (PAP-00050571).
1.10	ACRES - AFFECTED AREA	Affected area based on corrected total site area and estimating the percentage of site covered by buildings in Figure 2-2 (PAP-00336027).	
4,046.86	METERS^2/ACRE		
4,452	METERS^2 (AFFECTED AREA)		
0.0001	METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
0	METERS^3/YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED	
1957	Year site operations began		
2009	Year site operations ceased	2009: Manufacturing operations ceased in May 2009 (PAP-00050655).	2010: The BASF Catalysts facility was demolished in 2010/2011 (PAP-00050655).
52	NUMBER YEARS DISCHARGE		
23	METERS^3 (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
1,931	KG/M^3 SOIL DENSITY	Fill described as well graded sand and silty sand with gravel. Bulk density range 1378 KG/M^3 to 2483 KG/M^3, so use average. (http://structx.com/Soil_Properties_002.html)	
44,687	KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)		
Copper (Cu)		Copper was used in the production of precious and non-precious metal coatings and metal salts at the facility (PAP-00050733-34).	
52	YEARS DISCHARGED		
588	MG/KG (MAX CONCENTRATION)	Max copper concentration in soil sample B-124 at 2 feet bgs (PAP-00053922)	
0.000001	kg per mg (Merck Index)		
26	KILOGRAMS DISCHARGED		
Lead (Pb)		Lead was used as an intermediate in the production of precious and non-precious metal coatings and metal salts at the facility (PAP-00050733-34).	
52	YEARS DISCHARGED		
1,400	MG/KG MAX CONCENTRATION)	Max lead concentration in soil boring B-30 at 4 to 4.5 feet bgs sampled (PAP-00050686)	
0.000001	kg per mg (Merck Index)		
63	KILOGRAMS DISCHARGED		
Mercury (Hg)			
52	YEARS DISCHARGED		
383.0	MG/KG (MAX CONCENTRATION)	Max mercury concentration in soil boring B-122 at 1.5 feet bgs (PAP-00053921).	
0.000001	kg per mg (Merck Index)		
17	KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)		Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample.	MAX PAH ON PDF PAGE 121 (PAP-00053930)
52	YEARS DISCHARGED		
10.6	MG/KG (TOTAL PAH MAX CONCENTRATION)		
0.000001	kg per mg (Merck Index)		
0	KILOGRAMS DISCHARGED		
PAHs (others detected)			OTHERS APPLY TEF = 0.01
52	YEARS DISCHARGED		
75.37	MG/KG (TOTAL PAH MAX CONCENTRATION)	Sum of max PAH values (PAP-00053930, pdf page 121)	
0.000001	kg per mg (Merck Index)		
3	KILOGRAMS DISCHARGED		
PCBs			
52	YEARS DISCHARGED		
0.44	MG/KG (MAX OF REPORTED CONCENTRATIONS)	Shallow sample, Sample B-307-2 (2 ft bgs) (PAP-00053851, PAP-00053210 pdf p 146).	
0.000001	kg per mg (Merck Index)		
0	KILOGRAMS DISCHARGED		
DDx			
0	YEARS DISCHARGED within DDx Timeline	NONE REPORTED	
	MG/KG (MAX CONCENTRATION)		
0.000001	kg per mg (Merck Index)		
0.000000	KILOGRAMS DISCHARGED		

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	7.410	1.0	7.4100
Benzo(a)anthracene	8.310	0.1	0.8310
Benzo(b)fluoranthene	8.950	0.1	0.8950
Benzo(k)fluoranthene	3.540	0.01	0.0354
Chrysene	8.370	0.001	0.0084
Dibenz(a,h)anthracene	1.010	1.0	1.0100
Indeno(1,2,3-cd)pyrene	4.440	0.1	0.4440

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **10.6**

Dieldrin		
0	YEARS DISCHARGED within Dieldrin Timeline	NONE REPORTED
	MG/KG (MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
0.00	KILOGRAMS DISCHARGED	
Dioxins/Furans		
52	YEARS DISCHARGED	
0.0000	MG/KG (MAX CONCENTRATION)	
0.000001	kg per mg (Merck Index)	
0.0000	KILOGRAMS DISCHARGED	

SUMMARY FTMASS ESTIMATES:	
26.28	kg Copper
62.56	kg Lead
17.12	kg Mercury
0.48	kg PAHs (Benzo(a)pyrene Equivalent)
3.37	kg PAHs (Other)
0.02	kg PCBs
0.00	kg DDx
0.00	kg Dieldrin
0.00	kg Dioxins/Furans

109.82	MASS (KG) DISCHARGED FROM SURFACE SOIL

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

BASF Catalysts LLC

1 West Central Avenue	**East Newark**	**NJ**	**07032**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
4.174E-6	10.0%	Periodic Noncompliacne	Multiple Administrative Consent Orders - Civil Penalties from NJDEP regarding air permit violations, improper use of materials (PCBs, sodium nitrate), and waste manifest errors in the 1980s and 1990s; fines were paid by the company. No information for how the PCB material was misused (PAP-00050754). The facility received nine NOVs from PVSC and NJDEP (1994-1997) for pH levels below 5.0 and one Administrative Consent Order – Civil Penalty from NJDEP for the same violation on April 9, 1995. The Administrative Consent Order facilitated the construction of the waste water treatment system. Following correction, no further action was required on any of them (PAP-00050757-59). Primarily non-COC violations	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.756E-6

AP_ABS	3.756E-6

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

BASF Catalysts LLC

1 West Central Avenue	**East Newark**	**NJ**	**07032**

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facillty Adjusted BS
3.869E-3	10.0%	Periodic Noncompliacne	Multiple Administrative Consent Orders - Civil Penalties from NJDEP regarding air permit violations, improper use of materials (PCBs, sodium nitrate), and waste manifest errors in the 1980s and 1990s; fines were paid by the company. No information for how the PCB material was misused (PAP-00050754). The facility received nine NOVs from PVSC and NJDEP (1994-1997) for pH levels below 5.0 and one Administrative Consent Order – Civil Penalty from NJDEP for the same violation on April 9, 1995. The Administrative Consent Order facilitated the construction of the waste water treatment system. Following correction, no further action was required on any of them (PAP-00050757-59). Primarily non-COC violations	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.482E-3

AP_ABS	3.482E-3